



Minimum On Site Checklist (Non-Invasive) Auto Calc v2.0

Service Maintenance

AHRI#

|           |          |                |  |
|-----------|----------|----------------|--|
| Customer: |          | Date:          |  |
| Address:  |          | Technician (s) |  |
| City      | Province | Postal Code    |  |

\*RH calculations are not correct for DP temperatures below 32F, all fields need to be filled in with accurate measurements for correct calculations

|                                                          |         |                                                                                                                                              |                                                  |                                                                 |                                                                                                                                               |                                                                                                      |                      |
|----------------------------------------------------------|---------|----------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|----------------------|
| Ref. Type                                                |         | Metering Device                                                                                                                              |                                                  | Three Phase Voltage Imbalance Percentage (*Max 2%)              |                                                                                                                                               | Voltage: L1-L2 L2-L3 L3-L1 VAC                                                                       |                      |
| Outdoor Unit:                                            | Model # | Compressor(s) Amp:                                                                                                                           |                                                  | Heating A Cooling A                                             | * Amperage in range? (See name plate Copeland APP and/or manufacturers product specs) if not with in range fill out invasive repair checklist |                                                                                                      | OD Fan Amp: A        |
| Serial #                                                 |         | * Total Amperage:                                                                                                                            |                                                  | Heating A Cooling A                                             | Compressor(s) IRT MΩ °F                                                                                                                       |                                                                                                      |                      |
| Indoor Unit:                                             | Model # |                                                                                                                                              |                                                  | Voltage: L1-L2 L2-L3 L3-L1 VAC                                  |                                                                                                                                               |                                                                                                      |                      |
| Serial #                                                 |         | * Blower Amperage:                                                                                                                           |                                                  | A                                                               | Heater + Blower: A                                                                                                                            |                                                                                                      |                      |
| Filter & Coil Clean                                      | YES     | Check/Verify Air Flow                                                                                                                        | YES                                              | Fan Speed High                                                  |                                                                                                                                               | TESP " wc Coil PD " wc                                                                               |                      |
| Check/Test Electric Heater, Sequencers and/or Heat Relay |         | YES                                                                                                                                          | N/A                                              | Heater Size [ Kilowatt ] kW OR Oil / Gas                        |                                                                                                                                               | Blower IRT MΩ RPM                                                                                    |                      |
| Test Capacitor(s) under load                             |         | YES                                                                                                                                          | N/A                                              | Blower Compressor OD Fan                                        |                                                                                                                                               | MFD MFD MFD MFD MFD MFD Variation (±6%)                                                              |                      |
| Check and Inspect all Electrical Wiring and Components   |         | YES                                                                                                                                          | Check/Cleaned Condensate Drain, Trap and/or Pump |                                                                 | YES                                                                                                                                           |                                                                                                      |                      |
| Thermostat Staging Differential                          |         | First (HP) (1F/0.5C)                                                                                                                         | °F OR °C                                         | Second (AUX) (2F/1C)                                            |                                                                                                                                               | °F OR °C                                                                                             | Delay (30-60min) Min |
| Check/Set Balance Points                                 |         | YES                                                                                                                                          | N/A                                              | High BP °F OR °C                                                |                                                                                                                                               | Low BP °F OR °C                                                                                      |                      |
| Set/Check Defrost Termination/Time                       |         | YES                                                                                                                                          | N/A                                              | Min OR °F (60min/70°F)                                          |                                                                                                                                               | Test/Forced Defrost YES N/A                                                                          |                      |
| Outdoor Unit HEATING                                     |         | COOLING                                                                                                                                      |                                                  | Indoor Unit HEATING                                             |                                                                                                                                               | COOLING                                                                                              |                      |
| Target Evap Temp / CTOA                                  |         | 6-9 SEER Equipment Only OAE = 30° CTOA<br>10-12 SEER Equipment = 25° CTOA<br>13-14 SEER Equipment = 20° CTOA<br>15 SEER Equipment = 15° CTOA |                                                  | *Target Delta T (ΔT)                                            |                                                                                                                                               | RATED HEATING CAPACITY BTU/H @ OAT °F °ΔT °ΔT *TEET °F ±3 °DB & WB Required for accurate calculation |                      |
| Suction Line                                             |         | °F                                                                                                                                           |                                                  | *Entering Air Temp                                              |                                                                                                                                               | DB / WB °F % RH                                                                                      |                      |
| Vapour Line                                              |         | °F                                                                                                                                           |                                                  | *Leaving Air Temp                                               |                                                                                                                                               | DB / WB °F % RH                                                                                      |                      |
| Liquid Line                                              |         | °F                                                                                                                                           |                                                  | Actual Temperature Split (ΔT)                                   |                                                                                                                                               | °                                                                                                    |                      |
| Discharge Line                                           |         | °F                                                                                                                                           |                                                  | *Total Capacity                                                 |                                                                                                                                               | HEATING CAPACITY BTU/H COP Tons                                                                      |                      |
| Outside Air                                              |         | DB °F DB °C % RH                                                                                                                             |                                                  | Total Power Input                                               |                                                                                                                                               | Watts KWh EER                                                                                        |                      |
|                                                          |         | WB °F DP °F                                                                                                                                  |                                                  | Verified Air Flow CFM                                           |                                                                                                                                               | CFM/Ton (Nominal 400CFM per Ton)                                                                     |                      |
| Entering Water                                           |         | °F °                                                                                                                                         |                                                  | Total Capacity Within ±10% of High/Low Range of Rated Capacity? |                                                                                                                                               | RATED HEATING CAPACITY BTU/H HEATING CAPACITY BTU/H VARIATION                                        |                      |
| Leaving Water                                            |         | °F °                                                                                                                                         |                                                  | YES NO N/A If No, Troubleshoot system.                          |                                                                                                                                               | RATED COOLING CAPACITY BTU/H COOLING CAPACITY BTU/H VARIATION                                        |                      |

\*Always use Equipment Test mode Central (High fan speed, ductless) located in Thermostat to ensure proper readings due to potential air flow changes. \*Calculating capacitor under a load requires amperage from start winding (HERM) and voltage between C and HERM.  
All measurements are to be made closest to the unit as possible but out of sight of coil and after a minimum of 15mins of operation in each mode and verified that the unit has reached maximum capacity. Psychrometer is needed to measure Wet Bulb temperature at the unit. The accuracy of the measurement will determine capacity calculation.  
Calculations will only be performed for indoor unit A, they are only accurate when CFM is verified. Please use provided product specs to determine CFM on HIGH fan speed (ductless), ECM readout (constant CFM) or static pressure (constant torque) see into icons and Bold text for links to more info  
RH calculations are not correct for Dew Point temperatures below 32F, DP Calculations are not accurate below RH of 50%, RH calculations above DP temperatures of 32F are within 1.02% Capacity calculations are within 5%  
Calculated Target DeltaT using manufacturers output ratings @ specified Outdoor Air Temperature can be used as a baseline while also checking manufacturers product specifications to verify the unit is operating as the manufacturer intended.  
Target Evaporator Temperature or TET = The saturation temperature the evaporator coil should be based on the return air temperature (Standard DTD of 35°F), using a PT chart compare the target saturation temperature to evaporator pressure.  
Target Condensing Temperature Over Ambient (CTOA) = This is the target temperature difference of the condensing temperature and the ambient air, please measure the outdoor air temperature in the shade entering the condenser. Calculation assumes a default of 4degrees of subcooling, range of ±5 degrees. This will be 30° over ambient on old units, and 15° for new high efficiency units.

Notes:

Recommendations: